

Remarks

Support for the Amendments

Support for the foregoing amendments to claims 1, 5, 6 and 20, and for new claims 21-29 can be found throughout the specification and in the claims as originally filed. These amendments do not add new matter, and their entry and consideration are respectfully requested.

Status of the Claims

By the foregoing amendments, claims 2-4 and 10-19 have been canceled, claims 1, 5, 6 and 20 are sought to be amended, and new claims 21-29 are sought to be added. Upon entry of the foregoing amendments, claims 1, 5-9 and 20-29 are pending in the application, with claims 1 and 20 being the independent claims.

Summary of the Office Action

In the Office Action dated September 9, 2004, the Examiner has made eight rejections of the claims. Applicants respectfully offer the following remarks to traverse each of these elements of the Office Action. Applicants respectfully request reconsideration of the present Application.

Rejection Under 35 U.S.C. § 102(e) Over Lindstrom

In the Office Action at page 3, the Examiner has rejected claims 1, 3-6, 7, 8 and 14 under 35 U.S.C. § 102(e), as being anticipated by Lindström, C., U.S. Patent No. 6,773,493 (hereinafter "Lindström"). Applicants respectfully traverse this rejection. However, solely to expedite prosecution, and not in acquiescence to this rejection, claims

2-4 and 14 have been cancelled. Hence, the portion of this rejection that may have applied to these claims has been rendered moot. Applicants also respectfully traverse this rejection as it may apply to the remaining claims.

The Examiner asserts that Lindström discloses an apparatus comprising a polytetrafluorethylene membrane on a support, a vacuum source and an analyzer. The Examiner further asserts that the membrane allows gas to pass, but not liquid, and is in fluid communication with a trap. The Examiner therefore concludes that Lindstrom anticipates the present claims. Applicants respectfully disagree with this conclusion.

Applicants respectfully submit that Lindström does not disclose the use of a heater for a semi-permeable membrane as recited in present claim 1 (and hence, claims 5-8 that depend ultimately therefrom). It is further noted that Lindström does not disclose the use of a gas chromatograph in fluid communication with the permeate side of a semi-permeable membrane, also as recited in present claim 1 (and hence the dependent claims listed above).

Under 35 U.S.C. § 102, a claim can only be anticipated if every element in the claim is expressly or inherently disclosed in a single prior art reference. Since Lindström does not expressly or inherently disclose one or more elements of the presently claimed invention, this reference cannot and does not anticipate claims 1 and 5-8. Therefore, reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(e) over Lindström are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Over Sjostrom, In View Of Hubbell, and Further In View Of Liang

In the Office Action at page 3, the Examiner has rejected claims 1-4, 8-10, 14 and 20 as being unpatentable over Sjostrom, S. *et al.*, U.S. Patent No. 6,736,883 (hereinafter "Sjostrom") in view of Hubbell, J.M., *et al.*, U.S. Patent No. 6,609,434 (hereinafter "Hubbell") and further in view of Liang, D.C., *et al.*, U.S. Patent No. 5,062,708 (hereinafter "Liang"). Applicants respectfully traverse this rejection. However, solely to expedite prosecution, and not in acquiescence to this rejection, claims 2-4, 10 and 14 have been cancelled. Hence, the portion of this rejection that may have applied to these claims has been rendered moot. Applicants also respectfully traverse this rejection as it may apply to the remaining claims.

The Examiner asserts that Sjostrom discloses a system employing a filter with a support and heater, and sample extraction lines. The Examiner notes that the sampled mercury is then analyzed. The Examiner states that Sjostrom "does not refer to [a] vacuum, state that the porous metal is semi-permeable, and does not clearly state that the analyzer is in fluid communication with the filter." Office Action at page 3, fifth paragraph.

The Examiner sites the disclosure of Hubbell in order to provide support for the assertion that porous metal is a semi-permeable material. The Examiner further asserts that it would have been obvious to connect a gas chromatograph to the system of Sjostrom, because Liang discloses that a gas chromatograph may detect mercury. The Examiner further asserts that gas chromatographs employ a vacuum to pass samples. The Examiner therefore concludes that the present invention is rendered obvious. Applicants respectfully disagree with these assertions and the Examiner's conclusions.

Present claim 1 (and hence, claims 8 and 9 that depend ultimately therefrom) recites an apparatus for sampling gas phase molecules, comprising a semi-permeable, gas-permeable membrane, a support structure, a heater for the membrane, a vacuum source that generates a reduced pressure at the permeate side of the membrane and a gas chromatograph in fluid communication with the permeate side of the semi-permeable membrane.

Applicants respectfully submit that Sjostrom is deficient as a primary reference for several reasons. As the Examiner has noted, Sjostrom does not disclose the use of a semi-permeable membrane, the use of a vacuum source, or the use of a gas chromatograph to analyze the gas phase molecules. Applicants respectfully submit that these serious deficiencies in Sjostrom cannot be cured by the disclosures of Hubbell or Liang, alone, or in combination.

With regard to the use of a semi-permeable membrane, Applicants respectfully submit that while a porous metal membrane can be semi-permeable, the porous metal membrane disclosed in Sjostrom and described in Hubble are not semi-permeable membranes as that term is used in the specification and present claims. Applicants respectfully submit that the ordinarily skilled artisan would readily understand that the term "semi-permeable membrane," as it relates to membranes for use in the present invention, means that the membranes will not permit bulk flow of liquids or solids, but rather only allow flow of gas-phase molecules. *See Specification at page 11, paragraph 31, lines 8-10.* Applicants note that the "semi-permeable" porous metal membranes of Hubbell actually require the transport of water and exclude the transport of gas-phase molecules. "Also, the semi-permeable member has pores sized to transmit water but

exclude air transport across the member." Hubbell at column 12, lines 18-20. Therefore, the disclosure of Hubbell does not provide support for the Examiner's conclusion that the filter disclosed in Sjostrom is a "semi-permeable membrane," as that term is used in the present claims and specification.

With regard to the Examiner's assertion that it would have been obvious to connect a gas chromatograph to the system of Sjostrom because Liang discloses that a gas chromatograph may detect mercury, Applicants respectfully submit that the Examiner has not provided any motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to make such a combination. Sjostrom discloses using the system with a mercury analyzer or manual mercury measurement system. There is no mention of using the system in conjunction with a gas chromatograph. Simply the fact that Liang lists a reference on its face page with the title "Alternating Current Plasma Detector for Selective Mercury Detection in Gas Chromatograph," does not provide motivation to use a gas chromatograph in conjunction with Sjostrom's system. The ordinarily skilled artisan would not be motivated to combine the disclosure Sjostrom with that of Liang. A disclosure simply indicating that a gas chromatograph can be used to detect mercury does not suggest that such an analysis device could or should be used in conjunction with Sjostrom's system. Hence, the Examiner has not met the burden of establishing a *prima facie* case of obviousness.

Finally, Applicants respectfully submit that the Examiner's assertion that gas chromatographs employ vacuums to pass samples does not provide sufficient motivation to utilize a vacuum source in conjunction with the system of Sjostrom, much less a

vacuum source that generates a reduced pressure at the permeate side of a semi-permeable membrane as recited in present claim 1. The Examiner has not provided any support for the assertion that gas chromatographs typically employ vacuums in their operation. In fact, Applicants respectfully submit that gas chromatographs typically do not utilize vacuums to pass samples, and hence, the Examiner has not provided sufficient motivation to utilize a gas chromatograph, or a vacuum source, in conjunction with the system of Sjostrom.

Furthermore, Applicants respectfully submit that Sjostrom, alone or in combination with Hubbell and/or Liang, does not disclose a method for sampling gas phase molecules of a sample, comprising placing a semi-permeable, gas-permeable, heated membrane having a permeate side and a sample side in fluid communication with the sample, generating a reduced pressure on the permeate side of the gas-permeable membrane with a vacuum pump to draw the gas phase molecules from the sample through the gas-permeable membrane to the permeate side and then to a sample loop and analyzing the gas phase molecules in a gas chromatograph, wherein the gas chromatograph is in fluid communication with the sample loop, as recited in present claim 20. As discussed above, Sjostrom does not disclose the use of a semi-permeable membrane as that term is used in the present specification and claims. Furthermore, Sjostrom does not disclose the use of a vacuum source (or pump), or a gas chromatograph to sample the gas phase molecules. As discussed above, these serious deficiencies in Sjostrom are not cured by the disclosures of Hubbell or Liang, alone or in combination.

In view of the foregoing remarks, Applicants respectfully submit that a *prima facie* case of obviousness has not been established based on the disclosures of Sjostrom, Hubbell and Liang, alone, or in combination. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Over Traina '432, In View of Chobotov and Further In View Of Hubbell

In the Office Action at pages 3-4, the Examiner has rejected claims 1-4, 7-10, 13, 14 and 20 as being unpatentable over Traina, J.E. *et al.*, U.S. Patent No. 5,297,432 (hereinafter "Traina '432"), in view of Chobotov, M.V., *et al.*, U.S. Patent No. 6,776,604 (hereinafter "Chobotov") and further in view of Hubbell. Applicants respectfully traverse this rejection. However, solely to expedite prosecution, and not in acquiescence to this rejection, claims 2-4, 10, 13 and 14 have been cancelled. Hence, the portion of this rejection that may have applied to these claims has been rendered moot. Applicants also respectfully traverse this rejection as it may apply to the remaining claims.

The Examiner asserts that Traina '432 discloses an apparatus, including a heated sintered metal filter, through which a sample is drawn via a pump, then passed through a chiller and an analyzer. The Examiner notes that Traina '432 does not disclose that the filter is a semi-permeable membrane. The Examiner relies on the disclosures of Chobotov and Hubbell to cure this deficiency, noting that Chovotov discloses that sintered metal is porous, and that Hubbell discloses that porous metal is semi-permeable. The Examiner further asserts that, as Traina '432's analyzer is schematic in nature, it would have been obvious to apply a gas chromatograph with sample loops for analysis. Applicants respectfully disagree with these assertions.

As discussed above, the ordinarily skilled artisan would readily understand that the term "semi-permeable" as it is used in the specification and present claims refers to a membrane that does not permit bulk flow of liquids or solids, but only allows flow of gas-phase molecules. The sintered metal filter disclosed in Traina '432, as well as the porous metal in Hubbell, clearly are not semi-permeable membranes, as that term is used in the present claims. *See* Traina '432 at column 3, lines 20-23, "exposed to high levels of acidic gases and to the fine particulates which permeate coarse filter 24." *See also*, Hubbell at column 12, lines 18-20, "[a]lso, the semi-permeable member has pores sized to transmit water but exclude air transport across the member."

With regard to the Examiner's assertion that it would have been obvious to employ a gas chromatograph for use in the system of Traina '432, the Examiner has provided no motivation based on Traina '432, or other cited reference, or knowledge generally available in the art, to make such a modification. Simply the fact that the system of Traina '432 could be used in combination with a gas chromatograph, absent more, is not a showing sufficient to meet the burden required to establish a *prima facie* case of obviousness. Applicants further note that Traina '432 is non-analogous art, related to sampling exhaust gases from flues and stacks, rather than an apparatus and methods for sampling gas phase molecules at or below the surface of a soil or liquid sample site, which is the subject matter of the present invention. Therefore, Applicants submit that Traina '432 may not form the basis of an obviousness rejection under 35 U.S.C. § 103(a).

In view of the foregoing remarks, Applicants respectfully submit that a *prima facie* case of obviousness has not been established based on the disclosures of Traina

'432, Chobotov and Hubbell, alone, or in combination. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Rejection Under 35 U.S.C. § 102(b) Over Long

In the Office Action at page 4, the Examiner has rejected claims 1, 3-6, 8 and 14 under 35 U.S.C. § 102(b), as being anticipated by Long, S.E. *et al.*, U.S. Patent No. 5,054,328 (hereinafter "Long"). Applicants respectfully traverse this rejection. However, solely to expedite prosecution, and not in acquiescence to this rejection, claims 3-4 and 14 have been cancelled. Hence, the portion of this rejection that may have applied to these claims has been rendered moot. Applicants also respectfully traverse this rejection as it may apply to the remaining claims.

The Examiner asserts that Long discloses an apparatus which utilizes a PTFE membrane, a vacuum source and an analyzer. The Examiner therefore concludes that Long anticipates the present claims. Applicants respectfully disagree with these assertions and this conclusion.

Applicants note that Long does not disclose the use of a vacuum source that generates a reduced pressure at the permeate side of a semi-permeable membrane, as recited in present claim 1. Long instead relies on diffusion of gas through the membrane (*see* Long at column 2, lines 6-11). Furthermore, Long does not disclose the use of a heater and Long does not disclose the use of a gas chromatograph in fluid communication with the permeate side of the semi-permeable membrane as recited in present claim 1. Therefore, Long does not disclose every element of the presently claimed invention, and hence, cannot and does not anticipate claims 1, 5, 6 and 8.

Therefore, reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) over Long are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Over Long

In the Office Action at page 4, the Examiner has rejected claims 4 and 9 under 35 U.S.C. § 103(a), as being unpatentable over Long. Applicants respectfully traverse this rejection. However, solely to expedite prosecution, and not in acquiescence to this rejection, claim 4 has been canceled. Hence, the portion of this rejection that may have applied to this claim has been rendered moot. Applicants also respectfully traverse this rejection as it may apply to claim 9.

The Examiner asserts that it would have been obvious to employ a gas chromatograph for an analyzer in the system of Long because Long discloses that gas chromatographs successfully sense gases of interest, and further that gas chromatographs commonly employ sample valves with loops to provide a predetermined volume sample for analysis. The Examiner therefore concludes that Long renders the present invention obvious. Applicants respectfully disagree with this conclusion.

As noted above, Long does not disclose the use of a vacuum source as recited in present claim 1 (and hence, claim 9 that depends ultimately therefrom). Furthermore, Long does not disclose the use of a heater for the semi-permeable membrane. Hence, Long does not render obvious the presently claimed invention, as Long does not disclose or suggest all of the claim limitations. The Examiner has provided no reference, nor provided any indication of knowledge generally available to the ordinarily skilled artisan, to cure these deficiencies in Long. Hence, a *prima facie* case of obviousness has

not been established based on the disclosure of Long. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Over Springmann, In View of Traina '010 and Further In View Of Long

In the Office Action at page 5, the Examiner has rejected claims 1-14 and 20 as being unpatentable over Springmann, T., U.S. Patent No. 6,022,510 (hereinafter "Springmann"), in view of Traina, J.E. *et al.*, U.S. Patent No. 5,458,010 (hereinafter "Traina '010") and further in view of Long. Applicants respectfully traverse this rejection. However, solely to expedite prosecution, and not in acquiescence to this rejection, claims 2-4 and 10-14 have been cancelled. Hence, the portion of this rejection that may have applied to these claims has been rendered moot. Applicants also respectfully traverse this rejection as it may apply to the remaining claims.

The Examiner asserts that Springmann discloses a system, including a vacuum system to draw a sample through a heated line, through a trap and then on to an analysis apparatus. The Examiner notes that a filter, that may also be heated, is connected between the probe and the heated line. The Examiner notes that Springmann does not disclose that the filter is a semi-permeable membrane or that the analyzer is a gas chromatograph.

The Examiner relies on the disclosure of Traina '010 to support the assertion that a Teflon filter could be used in place of Springmann's filter because Traina '010 discloses that a Teflon filter will satisfactorily collect moisture and prevent particulates from entering into the sample channel of a flue probe. The Examiner also relies on the disclosure of Long to support the assertion that the analyzer of Springmann could

employ a gas chromatograph, because Long discloses that gas chromatographs accurately sense gas concentrations, and further notes that gas chromatographs commonly employ sample valves with loops to inject columns. The Examiner therefore concludes that the presently claimed invention is rendered obvious. Applicants respectfully disagree with this conclusion and the assertions on which it is based.

Applicants respectfully submit that Springmann does not disclose the use of a vacuum source that generates a reduced pressure at the permeate side of a semi-permeable membrane as recited in present claim 1 (and hence, the claims that depend ultimately therefrom), nor does Springmann disclose generating a reduced pressure on the permeate side of a gas-permeable membrane with a vacuum pump to draw gas phase molecules from the sample through the gas-permeable membrane to the permeate side and then to a sample loop, as recited in present claim 20. The disclosure of Springmann relies on feeding gas from a gas-sampling probe to the filter element disclosed in Springmann. *See* Springmann at column 3, lines 15-17. The Examiner cites the statement in Springmann that "flue gas is sucked in by means of a probe and fed to an analysis apparatus," in order to support the conclusion that Springmann discloses a vacuum source. *See* Office Action at page 5, second paragraph; Springmann at column 1, lines 10-11. Applicants respectfully submit that, even assuming that a vacuum source was used in a gas-sampling probe, this vacuum source would be on the *sample* side of the filter element, rather than on the *permeate* side of the filter (membrane) as required in the present claims. The Examiner's attention is directed to Figure 1 of Springmann, and to Springmann at column 3, lines 13-21, which states:

At its front end the closure plug 12 also has a connecting nipple 127, to which a gas-sampling probe can be attached in a manner not shown here.

Feeding of the flue gas to the filter element 11 is achieved via guide ducts 128, 129, which are provided in the form of holes in the closure plug 12. Thus, the flue gas enters the guide duct 128 axially and is passed through the radially directed guide duct 129 into the intermediate space between the filter housing 10 and the filter element 11.

Hence, viewing Figure 1, the gas-sampling probe (and thus any vacuum source that might be associated with it) are "upstream" of the filter element, and thus positioned at the "sample" side of the filter. Therefore, a reduced pressure would not be generated at the "permeate" side of the filter element (i.e., downstream of the filter, towards any analysis device) as in the presently claimed invention, but rather at the "sample" side of the filter. Applicants respectfully submit that Springmann therefore does not disclose all of the limitations of the present claims, and is therefore deficient as a primary reference on which to base a *prima facie* case of obviousness. The Examiner has not provided any citation or referenced any knowledge generally available to one of ordinary skill in the art that would cure this deficiency.

With regard to the Examiner's assertion that the filter element used in Springmann could be replaced with the Teflon filter disclosed in Traina '010, Applicants respectfully submit that ordinarily skilled artisan would have found no motivation in the disclosure of these references, or in the knowledge generally available in the art, to make such a substitution. Springmann discloses the use of a filter element for removing dirt and dust particles. *See* Springmann at column 2, lines 35-37. The disclosure of Springmann indicates that, because both the particle filter and the measured-gas line are heated, the temperature of the flue gas can be maintained above the dew point, thereby eliminating formation of any condensation on the particulate filter. *See* Springmann at column 1, lines 32-55.

Applicants respectfully submit that, based on the disclosure of Springmann, the ordinarily skilled artisan would not have been motivated to try the Teflon filter disclosed in Traina '010 in the sampling device of Springmann, as Springmann indicates that the use of a heated filter and sampling tube eliminates the concern of condensation on the filter element. Thus, the proposed advantages of using a Teflon filter that the Examiner indicates are suggested by Traina '010 would not have been useful or necessary when constructing the system of Springmann. The mere fact that Traina '010 discloses that a Teflon filter can be used in a flue gas-sampling system is not sufficient evidence to show that the ordinarily skilled artisan would have been motivated to modify the system of Springmann to utilize such a filter, especially when such a filter would not have been recognized as beneficial. Applicants therefore respectfully submit that the Examiner has not met the burden of establishing a *prima facie* case of obviousness.

Finally, Applicants respectfully submit that, contrary to the Examiner's assertion, it would not have been obvious to employ a gas chromatograph for use with the system of Springmann based on the disclosure of Long. There is no indication in Springmann that a gas chromatograph could or should be used in conjunction with such a sampling device. Furthermore, there is no reason to believe that simply because Long discloses that gas chromatographs act as gas sensors, that such an analyzer could or should be used in conjunction with a flue-gas sampling device as disclosed in Springmann. Applicants respectfully submit that the ordinarily skilled artisan would not be motivated to utilize a gas chromatograph in conjunction with the sampling device of Springmann, based on the disclosures of these references, or knowledge available in the art. The Examiner is reminded that the proper standard under 35 U.S.C. § 103 is not whether it would have

been "obvious to try" the suggested combination. *See* M.P.E.P. § 2145 at 2100-156. Applicants respectfully submit that the Examiner, at best, has indicated that it would have been obvious to try a gas chromatograph in combination with the sampling device of Springmann, but has not provided a motivation or suggestion to do so. Hence, the Examiner has not met the required burden in order to establish a *prima facie* case of obviousness. Applicants further submit that Springmann, directed to flue gas analysis, represents non-analogous art to the present invention, and thus Applicants submit that Springmann may not form the basis of an obviousness rejection under 35 U.S.C. § 103(a).

In view of the foregoing remarks, Applicants respectfully submit that a *prima facie* case of obviousness has not been established based on the disclosures of Springmann, Traina '010 and Long, alone, or in combination. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Over Marcote, In View of Traina '010

In the Office Action at pages 5-6, the Examiner has rejected claims 1-3, 5-8 and 14 as being unpatentable over Marcote, R. *et al.*, U.S. Patent No. 3,976,450 (hereinafter "Marcote"), in view of Traina '010. Applicants respectfully traverse this rejection. However, solely to expedite prosecution, and not in acquiescence to this rejection, claims 2-3 and 14 have been cancelled. Hence, the portion of this rejection that may have applied to these claims has been rendered moot. Applicants also respectfully traverse this rejection as it may apply to the remaining claims.

The Examiner asserts that that Marcote discloses an apparatus comprising a Teflon membrane through which a sample is passed and subsequently sent to an analyzer. The Examiner notes that Marcote does not use a vacuum to draw the sample to the analyzer, and does not employ a gas chromatograph. The Examiner relies on the disclosure of Traina '010 to provide support for the assertion that it would have been obvious to draw gas from the membrane towards the analyzer because Traina '010 discloses the use of a vacuum to draw sample material through a filter towards an analyzer. The Examiner therefore concludes that the present invention is rendered obvious. Applicants respectfully disagree with this conclusion and the assertions on which it is based.

As the Examiner has noted, Marcote does not disclose the use of a vacuum source that generates a reduced pressure at the permeate side of a semi-permeable membrane as recited in present claim 1 (and hence the claims that depend ultimately therefrom), nor does Marcote disclose generating a reduced pressure on the permeate side of a gas-permeable membrane with a vacuum pump to draw gas phase molecules from the sample through the gas-permeable membrane to the permeate side and then to a sample loop, as recited in present claim 20. Marcote instead relies on the use of a pump to provide a flow of sample gas that is passed through a diffusion cell system and on to an analyzer. *See* Marcote at column 6, lines 47-48. The Examiner relies on the disclosure of Traina '010 to cure this deficiency, alleging that it would have been obvious to use a vacuum source as disclosed in Traina '010 to draw gas from the membrane and towards the analyzer disclosed in Marcote. Applicants respectfully disagree with this conclusion.

Applicants note that the ordinarily skilled artisan would have found no motivation, in the disclosures of Marcote or Traina '010, or in the knowledge generally available in the art, to make such a modification. The system of Marcote relies on the diffusion of a sample gas through a diffusion cell and membrane prior to being conveyed to an analyzer. *See* Marcote at column 13, line 54 through column 4, line 56. Applicants respectfully submit that the ordinarily skilled artisan would not have been motivated to use a vacuum source in the system of Marcote. Marcote's reliance on the diffusion of a gas sample through a membrane would in fact teach away from the use of a vacuum source to generate a reduced pressure at the permeate side of the membrane. As stated in Marcote at column 10, lines 20-24, "a semipermeable membrane . . . allowing diffusion of the selected gaseous components therethrough at a rate corresponding to the partial pressure of said component in said sample." Even assuming *arguendo* that the ordinarily skilled artisan would have been motivated to use a vacuum source to draw a gas sample *to the diffusion cell*, rather than a pump used to push gas to the cell as disclosed in Marcote, the skilled artisan clearly would not have been motivated to use a vacuum source to generate a reduced pressure at the permeate side of the membrane, such that gas is drawn from the membrane towards the analyzer. Marcote's diffusion cell relies on the partial pressure of the gas components, rather than a reduced pressure produced by a vacuum source, to drive diffusion through a semipermeable membrane. Use of a vacuum source to generate a reduced pressure on the permeate side of the membrane would go against the principles of the diffusion cell disclosed in Marcote. Therefore, Applicants respectfully submit that the Examiner has not met the burden of establishing a *prima*

facie case of obviousness, as there is not motivation to modify the system of Marcote in this manner.

Applicants also submit that the disclosure of Marcote, alone or in combination with Traina '010, does not disclose the use of a gas chromatograph. Hence, the presently claimed invention cannot be rendered obvious by these disclosures.

In view of the foregoing remarks, Applicants respectfully submit that a *prima facie* case of obviousness has not been established based on the disclosures of Marcote and Traina '010, alone, or in combination. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Over Marcote, In View of Traina '010 and Further In View of Long

In the Office Action at page 6, the Examiner has rejected claims 4, 9-13 and 20 as being unpatentable over Marcote, in view of Traina '010, and further in view of Long. Applicants respectfully traverse this rejection. However, solely to expedite prosecution, and not in acquiescence to this rejection, claims 4 and 10-13 have been cancelled. Hence, the portion of this rejection that may have applied to these claims has been rendered moot. Applicants also respectfully traverse this rejection as it may apply to the remaining claims.

The Examiner asserts that it would have been obvious to use a gas chromatograph for Marcote's analyzer because Long discloses the use of a gas chromatograph to effectively analyze gas samples. The Examiner therefore concludes that the present invention has been rendered obvious. Applicants respectfully disagree with this conclusion and the assertions on which it is based.

Applicants respectfully submit that Marcote and Traina '010 represent non-analogous art to the presently claimed invention. The disclosures of Marcote and Traina '010 are directed to the sampling and analysis of gas phase molecules that are flowing through a flue or other exhaust stack-type system. Thus, the disclosures of Marcote and Traina '010 represent systems and apparatus that are not reasonably pertinent to the applications of the present invention, which provides apparatus and methods for sampling gas phase molecules at or below the surface of a soil or liquid sample site. Applicants note that the disclosures of Marcote and Traina '010 disclose systems for analysis of pollutants from various industrial or other waste-stack systems. The references disclose that such systems are useful for monitoring levels of gaseous species such as sulfur dioxide, nitrogen oxides, carbon monoxide, carbon dioxide and oxygen (*see e.g.*, Traina '010 at column 1, lines 17-28; Marcote at column 1, lines 11-30). The Examiner's reliance on Long as evidence of motivation to utilize a gas chromatograph as a gas analyzer in the system of Marcote (or in the system of Traina '010) is improper.

Applicants submit that the ordinarily skilled artisan, guided by the disclosures of Marcote and Traina '010, along with knowledge generally available in the art, would not have used a gas chromatograph in conjunction with either of these systems, regardless of the fact that Long discloses that a gas chromatograph is useful as a gas analyzer. The skilled artisan would utilize a much simpler analysis apparatus in the systems of Marcote or Traina '010 to detect and monitor gases emanating from exhaust stacks, rather than the complicated and involved set-up and requirements associated with a gas chromatograph. The sampling systems of Marcote and Traina '010 are designed to sample and monitor levels of atmospheric pollutants in stack wastes, not volatile gases that are present above

or at the surface of a soil or liquid sample, as in the presently claimed invention. The ordinarily skilled artisan would not be motivated to use a gas chromatograph in systems such as disclosed in Marcote or Traina '010, but instead utilize analyzers such as those disclosed in Marcote, e.g., colorimetical, electrical and thermal conductivity analyzers. *See* Marcote at column 1, lines 35-38. Hence, Applicants respectfully submit that the Examiner has not met the burden of establishing a *prima facie* case of obviousness, as no motivation has been provided to utilize a gas chromatograph in the system of Marcote (or Traina '010).

In view of the foregoing remarks, Applicants respectfully submit that a *prima facie* case of obviousness has not been established based on the disclosures of Marcote, Traina '010, and Long, alone, or in combination. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

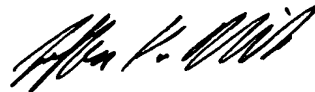
Conclusion

All of the stated grounds of rejection have been properly traversed or otherwise overcome. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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Date: March 9, 2005

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